

## **REMARKS**

### **Introduction**

Upon entry of the foregoing amendment, claims 1-15 are pending in the application. Claims 1-14 have been amended to more clearly recite the present general inventive concept. Claim 15 has been added. No new matter is being presented. In view of the following remarks, reconsideration and allowance of all the pending claims are requested.

Applicant also notes with appreciation the Examiner's indication that each of the references cited in the Information Disclosure Statement of January 30, 2004 have been considered.

### **Rejection under 35 USC §103**

Claims 1, 5, 9, and 11 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,280,431 to Summerville et al. (hereinafter "Summerville"). In setting forth the rejections, the Examiner cites column 2, lines 4-22 of Summerville as allegedly disclosing two automated guided vehicles (AGVs) operating on a single guide path. Contrary to the Examiner's assertions, the cited passage does not disclose two AGVs on a single guide path, but instead indicates allowing multiple AGVs to coexist on multiple pathways. Indeed, Summerville apparently solves vehicle routing conflicts through unfixed programmable pathways and by allowing vehicles to pass one another in multiple directions along those pathways. See Summerville column 2, lines 48-59. Clearly, such contrary teachings of Summerville to route multiple vehicles on different paths cannot be properly construed as reading on the recitations of independent claims 1, 5, 9, and 11. Thus, for at least the foregoing reasons and those discussed below, Applicant respectfully submits that claims 1, 5, 9, and 11 would not have been made obvious by Summerville and are therefore patentable over the reference. Reconsideration and allowance of these claims are requested for at least these and the reasons provided below.

### **Claim 1**

Summerville does not disclose, teach or suggest, among other things, "moving the other automated guided vehicle along the guide path if the movements can be conducted concurrently," as recited in independent claim 1. In fact, Summerville teaches away from such

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concurrent motion on a single path by assigning each AGV its own separate path formed from a plurality of path segments reserved that AGV. See Summerville column 4, lines 3-13, column 5, lines 12-15 and column 8, lines 8-17. Moreover, in accordance with Summerville, a node allocated to another AGV would require an AGV wishing to move to that node to wait until the other AGV has passed the node. See Summerville column 7 line 68 – column 8, line 7 and Fig. 3. It is to be noted that such waiting has been identified in the subject patent application as an undesirable characteristic of the prior art, one that evidently resides in the system of Summerville.

As set forth in the MPEP at § 2142:

The Examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the Examiner does not produce a *prima facie* case, the applicant is under no obligation to submit nonobviousness...

... To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Clearly, since Summerville teaches away from "moving the other automated guided vehicle along the guide path if the movements can be conducted concurrently," as presently recited in independent claim 1, the conditions for establishing a *prima facie* case of obviousness are not fulfilled by the reference and, for at least this reason, independent claim 1 is patentable over Summerville. Accordingly, reconsideration and allowance of independent claim 1 are earnestly solicited.

#### Claim 5

In the Official Action, the Examiner admits that Summerville fails to disclose the control unit to perform the tasks recited in claim 5 and asserts that the "claimed details are obviously what are the tasks of teaching AGVs since they are robots that receiving [sic] commands, work

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on tasks, and making [sic] the next moves from what already [sic] programmed". The Examiner then takes the position that it would have been obvious to use the host computer and the control unit in Summerville's system to perform the controller tasks recited in claim 5 "... because those claimed tasks are familiar works that have been performed by a robot such as an AGV for the advantage avoiding collisions between 2 AGVs on a single guided path, and creating a safe, and error-free environment."

First, it is respectfully submitted that the Examiner has failed to provide a proper basis to modify Summerville's control unit in the manner the Examiner suggested. As set forth in MPEP § 2143.01:

"In determining the propriety of the Patent Office case for obviousness in the first instance, it is necessary to ascertain whether or not the reference teachings would appear to be sufficient for one of ordinary skill in the relevant art having the reference before him to make the proposed substitution, combination, or other modification." *In re Linter*, 458 F.2d 1013, 1016, 173 USPQ 560, 562 (CCPA 1972).

Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

Summerville's routing process avoids, in the Examiner's words, "collisions between 2 AGVs on a single guided path" by preventing the occurrence of such a condition altogether. As described above, respective paths are reserved for each AGV and two AGVs do not exist on a single guide path per Summerville's teachings. Clearly, a modification that contradicts the expressed teachings of the reference would not "be sufficient for one of ordinary skill in the relevant art having the reference before him to make the proposed substitution, combination, or other modification" and thus fails to meet at least one of the conditions for properly modifying Summerville so as to implement "a control unit to assign work to an automated guided vehicle waiting for work according to the conveyance request from the host computer, to read information on respective current locations and working locations of the automated guided vehicles if the automated guided vehicles are moving to respective working locations on the

single guide path, to determine if movements by the automated guided vehicle waiting for work may be conducted on the single guide path concurrently with movements along the single guide path by the automated guided vehicles based on the read information, and to move the automated guided vehicle waiting for work along the single guide path to a working location thereon if the movements of the automated guided vehicles and the automated guided vehicle waiting for work can be conducted concurrently ,” as presently recited in independent claim 5.

As discussed above with regard to claim 1, Summerville fails to disclose, teach or suggest, among other things, “mov[ing] the automated guided vehicle waiting for work along the single guide path to a working location thereon if the movements of the automated guided vehicles and the automated guided vehicle waiting for work can be conducted concurrently,” as presently recited in independent claim 5. That being so, and since the Examiner’s suggested modification is improper, the conditions for establishing a *prima facie* case of obviousness, as cited above, are not fulfilled by the reference and, for at least the forgoing reasons, independent claim 5 is patentable over Summerville. Accordingly, reconsideration and allowance of independent claim 5 are earnestly solicited.

#### Claim 9

Summerville fails to teach, disclose, or suggest, among other things, “moving the automated guided vehicle waiting for work along the guide path to perform the assigned work whenever it is determined that movements of both the automated guided vehicle waiting for work and the automated guided vehicle moving to a working location can be conducted concurrently on the guide path without interference between the two automated guided vehicles,” as presently recited in independent claim 9. Thus, for reasons similar to those discussed with regard to claim 1, the conditions for establishing a *prima facie* case of obviousness, as cited above, are not fulfilled by Summerville and, for at least this reason, independent claim 9 is patentable over Summerville. Accordingly, reconsideration and allowance of independent claim 9 are earnestly solicited.

Claim 11

Summerville fails to teach, disclose, or suggest, among other things, "a control unit to assign work to one of the automated guided vehicles waiting for work according to the conveyance request from the host computer upon a positive determination that an automated guided vehicle is moving on the single guide path and to move the automated guided vehicle waiting for work along the single guide path toward the unloading location whenever it is determined that movements along the single guide path of the automated guided vehicle waiting for work and the automated guided vehicle already moving along the single guide path can be conducted concurrently without interference between the two automated guided vehicles," as presently recited in independent claim 11. Moreover, as discussed with regard to claim 5, Summerville cannot be properly modified to implement the control unit recited in independent claim 5. Thus, for at least the forgoing reasons, the conditions for establishing a *prima facie* case of obviousness, as cited above, are not fulfilled by Summerville and independent claim 11 is patentable over Summerville. Accordingly, reconsideration and allowance of independent claim 11 are earnestly solicited.

Claims 2, 6 and 12

Claims 2, 6, and 12 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Summerville. The Examiner asserts that Summerville discloses a control unit that determines whether simultaneous movements are possible based on current locations of two AGVs and moving directions of those AGVs.

It is respectfully submitted that the subject claims respectively incorporate all the limitations set forth in the independent claim on which they are dependent, and for at least the reasons that Summerville does not teach all of the features set forth in those independent claims, it is respectfully submitted that dependent claims 2, 6 and 12 are patentable over Summerville. Accordingly, reconsideration and allowance of dependent claims 2, 6 and 12 are earnestly solicited.

Claims 3, 7, 10 and 13

Claims 3, 7, 10, and 13 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Summerville. The Examiner acknowledges that Summerville fails to disclose a determination of whether simultaneous movements are possible is based on a distance between working locations being longer than a predetermined distance. The Examiner then alleges that distances in a working area would be premeasured and stored and that a comparison of a working location to an AGV could be obtained from the stored number. The Examiner asserts that the claimed distance determination would have been obvious to the ordinarily skilled artisan so that "... the intelligent robot of Summerville et al. react appropriately since its host computer could perform multiple tasks in a very short duration ..."

It is respectfully submitted that the subject claims respectively incorporate all the limitations set forth in the independent claim on which they are dependent, and for at least the reasons that Summerville does not teach all of the features set forth in those independent claims, it is respectfully submitted that dependent claims 3, 7, 10 and 13 are patentable over Summerville. Accordingly, reconsideration and allowance of dependent claims 3, 7, 10 and 13 are earnestly solicited.

Claims 4, 8 and 14

Claims 4, 8, and 14 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Summerville, in view of U.S. Patent No. 6,799,099 to Zeitler et al. (hereinafter "Zeitler"). It is respectfully submitted that the subject claims respectively incorporate all the limitations set forth in the independent claim on which they are dependent. However, it is further submitted that not only does Zeitler fail to overcome the deficiencies of Summerville discussed above, but also fails to show the further limitations presently recited in dependent claims 4, 8 and 14.

In the Official Action, the Examiner acknowledges that "Summerville, et al. do not disclose about a control unit moves an AGV waiting for work to a location spaced apart by a predetermined distance from the working location if it is determined that simultaneous

movements are impossible" (emphasis added). The Examiner asserts that "...Zeitler et al. suggest that an AGV may be programmed to either stop and wait until the obstruction is removed, or to follow an alternate route to avoid the obstacle" (emphasis added). The Examiner takes the position that it would have been obvious to implement Summerville with Zeitler "... because Zeitler et al. provide a controller to determine a flexibility between AGVs with an increased safety feature" (emphasis added).

Notwithstanding the Examiner's assertions that Zeitler allegedly discloses stopping a vehicle that is already in motion if an obstacle is encountered, the reference does not disclose "mov[ing] the automated guided vehicle waiting for work to the location spaced apart by a predetermined distance from the work location responsive to a determination that concurrent movement cannot be conducted," as presently recited in dependent claims 4, 8 and 14. It is respectfully submitted that, among other things, disclosure of stopping a vehicle in the presence of an obstacle cannot properly be construed as "mov[ing a] vehicle ... responsive to a determination that concurrent movement cannot be conducted." Thus, Summerville and Zeitler, separately and in combination, not only fail to disclose the features recited in independent claims 1, 5, 9 and 11, but also fail to disclose "mov[ing] the automated guided vehicle waiting for work to a location spaced apart by a predetermined distance from the working location if it is determined that the movements cannot be conducted concurrently", as presently recited in claims 4, 8 and 14. It is respectfully submitted, then, that dependent claims 4, 8, and 14 are patentable over Summerville and Zeitler for at least the forgoing reasons and for the reason that the references alone and in combination do not teach all of the features set forth in independent claims 1, 9 and 11, from which claims 4, 8 and 14, respectively, ultimately depend.

#### **New Claims**

New claim 15 has been added. No new matter is being introduced and support for new claim 15 can be found throughout the specification, such as, for example, in Figs. 1 and 2 and the respective descriptions thereof. Claim 15 is patentable over the cited prior art for at least the same reasons discussed above with regard to claims 1, 5, 9 and 11.

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**Conclusion**

It is respectfully submitted that a full and complete response has been made to the outstanding Office Action and, as such, there being no other objections or rejections, this application is in condition for allowance, and a notice to this effect is earnestly solicited.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided below.

If any further fees are required in connection with the filing of this amendment, please charge the same to our Deposit Account No. 502827.

Respectfully submitted,

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